CLAIMS

1. Method for manufacture of a cup (1) that is designed to serve as a blank in the production of a metal shell (2), which method comprises the following stages:

a) provision of a body (3) of a bar material, which body (3) has a through hole (17),

b) placing of the body (3) in a counterdie (6) and in which a first end surface (4) of the body (3) that is substantially perpendicular to the central axis (C) of the body (3) is placed facing towards the bottom (7) of the counterdie (6) while the inner wall (8) of the counterdie (6) encloses at least a part of the body (3) and preferably the whole body (3), so that the body (3) is hereby placed in the counterdie (6),

c) application of a mandrel (9) to a second end surface (5) of the body (3) that is substantially perpendicular to the central axis (C) of the body (3), in which the mandrel (9) has a centrally placed guide pin (18) for interacting with the through hole (17) of the body (3) so that the body (3) is thereby centred in relation to the mandrel (9),

d) application of a pressing force to the mandrel (9), so that the body (3) is cold flow pressed into a cup (1) by plastic deformation.

2. Method according to claim 1, characterized in that the guide pin (18) interacts with a centrally placed hole (19) in the bottom of the counterdie (6) so that the mandrel (9) is thereby centred in relation to the counterdie (6).

3. Method according to claim 1, characterized in that the body (3) has a width or diameter of 10-500 mm, preferably 30-350 mm and even more preferredly 50-200 mm and has a height of 5-300 mm, preferably 10-100 and even more preferredly 20-50 mm.

4. Method for manufacture according to claim 1 or 3, characterized in that the body (3) forms a part of a bar and has a chiefly homogeneous material structure around the central axis (C) of the bar material.

5. Method according to claim 1, 3 or 4, characterized in that in the cold flow pressing a surrounding wall (11) is formed that is deformed uniformly, so that an upper open end (12) of the cup (1) acquires a substantially even edge (14) due to the cold flow pressing and that the surrounding wall (11) formed in cold flow pressing in any cross-section perpendicular to the central axis (C) of the cup (1) has a substantially even material thickness dV in a range in which dV = 1-50 mm, preferably 2-25 mm and even more preferredly 3-10 mm and in which the material thickness is permitted a maximum

variation of 1.0 mm, preferably a maximum of 0.5 mm and even more preferredly a maximum of 0.05 mm.

6. Method according to claim 1, 3 or 4, characterized in that in the cold flow pressing a bottom (14) is formed that is deformed uniformly in which the bottom thickness dB = 1-50 mm, preferably 2-25 mm and even more preferredly 3-10 mm and in which the material thickness is permitted a maximum variation of 1.0 mm, preferably a maximum of 0.5 mm and even more preferredly a maximum of 0.05 mm.

7. Method according to claim 6, characterized in that a central part (A) of the bottom of the shell (2) following flanging has a thickness in the range 1 mm – 10 mm.

8. Method according to any of the above claims, characterized in that said shell (2) is a cartridge shell (2) in which the cartridge shell (2) has a diameter of 10-500 mm, preferably 30-350 mm and even more preferredly 50-200 mm and a height of 20-3000 mm, preferably 50-2000 mm and even more preferredly 100-1000 mm and has a minimum wall thickness at the mouth of the shell (2) of 0.5-3.0 mm, preferably 1.2-2.0 mm and even more preferredly 1.3-1.7 mm.

9. Process for manufacture of a shell, preferably a grenade/cartridge shell (2), which process comprises the following stages:

a) provision of a circular-cylindrical body of a bar material,
b) achieving, for example by drilling, a through hole (17) in the body (3), which hole (17) coincides with a central axis (C) of the body (3),
c) placing of the body (3) in a counterdie (6) and in which a first end surface (4) of the body (3) that is substantially perpendicular to the central axis (C) of the body is turned towards the bottom (7) of the counterdie (6) while the inner wall (8) of the counterdie (6) encloses at least a part of the body (3) and preferably the whole body (3), so that the body (3) is hereby placed in the counterdie (6),
d) application of a mandrel (9) to a second end surface (5) of the body (3) that is substantially perpendicular to the central axis (C) of the body (3), in which the mandrel (9) has a centrally placed guide pin (18) for interacting with the through hole (17) of the body (3) so that the body (3) is thereby centred in relation to the mandrel (9),
e) application of a pressing force to the mandrel (9), so that the body (3) is cold flow pressed into a cup (1) by plastic deformation,
f) deep drawing of the cup (1) thus produced so that a shell (2) is formed.

10. Process according to claim 9, characterized in that the cold flow pressing is terminated when the bottom (14) of the cup (1) has acquired a predetermined thickness in the range 3 mm – 10 mm.

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